WHAT IS CLAIMED IS:

1. A load cell body for transmitting forces and moments in a plurality of directions, the load cell body comprising:

an integral assembly having:

a first ring member and a second ring member, each ring member having a central aperture centered on a reference axis; and

at least three tubes extending from the first ring member to the second ring member parallel to the reference axis.

2. The load cell body of claim 1 and further comprising sensors mounted on selected tubes.

3. The load cell body of claim 2 wherein the sensor comprises shear sensors and axial tension/compression sensors mounted to each tube.

4. The load cell body of claim 1 wherein the first ring member includes an aperture aligned with an opening to a bore in each of the tubes.

5. The load cell body of claim 4 wherein the second ring member includes an aperture aligned with an opening to each bore of the tubes.

6. The load cell body of claim 1 and further comprising:

a mounting hub including a first annular rim joined to the first ring member, a second annular rim including a plurality of bores extending there through and a cylindrical support extending between the first annular rim and the second annular rim.

7. The load cell body of claim 1 wherein an outer surface of each tube is non-rectangular.

8. The load cell body of claim 2 wherein an outer surface of each tube includes a plurality of opposed surfaces and wherein the sensors are mounted to the opposed surfaces.

9. The load cell body of claim 8 wherein the outer surface comprises a first pair of surfaces facing in opposite directions and a second set of surfaces facing in opposite directions, the second set of surfaces being substantially orthogonal to the first set of surfaces such that the surfaces of the first set and the second set are alternately disposed about each corresponding longitudinal axis and wherein the sensors are mounted to the surfaces of the first and second sets of surfaces.

10. The load cell body of claim 9 wherein eight tubes join the first ring member to the second ring member, and wherein opposed surfaces of adjacent pairs of tubes are aligned such that the first pair of opposed surfaces face the same direction and the

second pair of opposed surfaces face the same direction.

11. The load cell body of claim 10 wherein each of the opposed surfaces is planar.

12. The load cell body of claim 10 wherein the outer surfaces of each tube form an octagon.

13. The load cell body of claim 10 wherein the sensors comprise a first set of shear sensors are mounted on the first set of opposed surfaces comprising a first shear sensing circuit for each tube, and a second set of axial tension/compression sensors are mounted on the second set of opposed surfaces comprising a second axial tension/compression sensing circuit for each tube.

14. The load cell body of claim 13 wherein the first shear sensing circuits of each of said adjacent pair of tubes are electrically coupled to provide an output signal, and wherein the second axial tension/compression sensing circuits of each of said adjacent pair of tubes are electrically coupled to provide an output signal.

15. The load cell body of claim 4 wherein at least some of the apertures in the first ring member aligned with the bores include mounting threads.

16. The load cell body of claim 5 wherein at least some of the apertures in the first and second

ring members aligned with the bores include mounting threads.

17. The load cell body of claim 1 and further comprising:

an inner cylindrical wall plate joined to at least one of the first and second ring members; and

an outer cylindrical wall plate joined to at least one of the first and second ring members, wherein the plurality of tubes are disposed between the inner and outer cylindrical wall plates.

18. The load cell body of claim 17 wherein inner and outer cylindrical wall plates are joined to the first and second ring members to form a sealed chamber.

19. The load cell body of claim 1 and further comprising an overtravel limit assembly extending within a bore of a tube.

20. The load cell body of claim 19 wherein the overtravel limit assembly comprises a first extension joined to the first ring member and a second extension joined to the second ring member, a coupling device selectively coupling the first and second extension members to limit displacement of the first extension from the second extension.

21. The load cell body of claim 20 wherein the first extension member and the first ring member include mating threads and the second extension member and the second ring member include mating threads.

22. The load cell body of claim 21 wherein the first and second extension members each include central recesses with inner threads.

23. The load cell body of claim 2 wherein the sensor comprises a bending sensor.

23. A method of making a load cell body for transmitting forces and moments in plural directions, the method comprising the steps of:

fabricating from a single block of material an integral assembly having a first annular ring, a second annular ring and a plurality of members spanning between the first and second annular rings, wherein each annular ring has a central aperture centered on a reference axis; and

forming a bore within each member from and through the first annular member.

24. The method of claim 23 wherein the step of fabricating includes forming an aperture in the second annular ring aligned with the corresponding bore formed in the member.

25. The method of claim 23 wherein an outer surface of each radial member is non-rectangular.

26. The method of claim 25 wherein the outer surface of each radial member includes planar surfaces.